

INFORMATION SHEET

DUCT DETECTORS

Smoke detectors installed in air handlers shall be in accordance with the *UMC, NFPA 72 & NFPA 90A*.

- In buildings provided with a fire alarm system, smoke detector(s) installed in air handlers shall be connected to the fire alarm control panel. In buildings without a fire alarm system, activation of the air handler smoke detector(s) shall cause annunciation of an audible/visible signal in a normally occupied area. The smoke detector trouble conditions shall be identified as air duct detector trouble in accordance with NFPA 90A, 2002 Edition. In multi-tenant facilities, a single audible/visible device shall be installed in each of the individual tenant spaces.
NFPA 1: 13.7.1.4.14.11 [CLV Ordinance #5667] SEE PAGE 2 of 2 for additional requirements
- All automatic shutdown devices shall be tested at least annually. *NFPA 90A: 6.4.1*
- Smoke detectors shall be installed, tested, and maintained in accordance with NFPA 72, *National Fire Alarm Code*. *NFPA 90A, 6.4.4.1, 2002 Edition*
- Smoke detectors listed for use in air distribution systems shall be located: *NFPA 90A: 6.4.2.1*
 - Downstream of the air filters and ahead of any branch connections in air supply systems having a capacity greater than 2000 cubic feet per minute.
 - At each story prior to the connection to a common return and prior to any recirculation or fresh air inlet connection in air return systems having a capacity greater than 15,000 cubic feet per minute and serving more than one story.
- Return system smoke detectors shall not be required where the entire space served by the air distribution system is protected by a system of area smoke detectors. *NFPA 90A: 6.4.2.2*
- Smoke detectors shall not be required for fan units whose sole function is to remove air from the inside of the building to the outside of the building. *NFPA 90A: 6.4.2.3*
- Smoke detectors provided as required by NFPA 90A: 6.4.2 shall automatically stop their respective fan(s) upon detecting the presence of smoke. *NFPA 90A: 6.4.3.1*
- Where the return air fan is functioning as part of an engineered smoke-control system and a different mode is required, the smoke detectors shall not be required to automatically stop their respective fans. *NFPA 90A: 6.4.3.2*
- Smoke dampers shall be controlled by an automatic alarm-initiated device. *NFPA 90A: 6.3.1*
- Smoke dampers shall be permitted to be positioned manually from a command station. *NFPA 90A: 6.3.2*
- Smoke dampers installed to isolate the air-handling system in accordance with NFPA 90A, 4.3.9.2 shall be arranged to close automatically when the system is not in operation. *NFPA 90A: 6.3.3*
- Smoke dampers installed in smoke barriers shall be permitted to remain open during fan shutdown, provided their associated controlling damper actuators and smoke detectors remain operational. *NFPA 90A: 6.3.4*
- Smoke detectors powered separately from the fire alarm system for the sole function of stopping fans shall not require standby power. *NFPA 90A: 6.4.4.4*

1. Duct smoke detectors that **are connected** to a fire alarm system will have which type of indicating signaling determined at the time of plan review. The duct detectors will either initiate an alarm signal or a supervisory type signal. The use of a trouble signal at the fire alarm panel will not be an option with this configuration.
2. Duct detectors that **are not connected to a fire alarm system** will be per the following criteria:
3. The use of a fire alarm horn/strobe does not meet the requirement of the signals required per NFPA1 / UFC 2003 Edition Ordinance #5667. As reflected below.

13.7.1.4.14.11 Duct Detector Annunciation. In buildings provided with a fire alarm system, the smoke detector(s) installed in air handlers shall be connected to the fire alarm control panel. In buildings without fire alarm systems, activation of the air handler smoke detector(s) shall cause annunciation of an audible/visual signal in a normally occupied area. The smoke detector trouble conditions shall be identified as air duct detector trouble in accordance with NFPA 90A, 2002 Edition. In multi-tenant facilities, a single audible/visual device shall be installed in each of the individual tenant spaces.

Signal requirements for annunciation devices:

Power on indication shall be a Green LED whenever the device is on and operating
Trouble signal indication shall be a Yellow LED when the head is missing, cover is removed, etc.
Alarm signal indication shall be a Red LED and associated alarm horn when the device is activated

*The use of a key operated test switch is allowable as reflected on device examples.

4. Since the duct detectors are **not part** of an approved fire alarm system, and do not fall under the same testing and maintenance requirements, they shall not be connected to the sprinkler monitoring panel for signal transmission to the central station.
5. The requirements for the installation of the remote accessory devices are **not retroactive** for completed projects.
6. The mounting for the accessory devices can be in one of the following locations.
 - a. above the thermostat device in common area
 - b. Mounted directly below the device in the ceiling tile (This location is preferable)
 - c. Wall mounted in common area
7. If there is the requirement that all of the units need to be shut down on a global basis, each unit shall be outfitted with an accessory device.

The items listed are basic information only. Codes are subject to change. Additional requirements may apply.

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